

Mr. Steven Smith
County Line Landfill
RR1 Box 261
Argos, Indiana 46501

Re: **049-10987**
Significant Source Modification to:
Part 70 permit No.: **T049-9734-00029**

Dear Mr. Smith:

County Line Landfill was issued Part 70 operating permit T049-9734-00029 on March 10, 1999, for a municipal solid waste landfill. An application to modify the source was received on May 21, 1999. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

- (c) one (1) blower/flare station, capable of combusting 4,000 standard cubic feet per minute (scfm) of landfill gas, identified as Unit 3, exhausting through one (1) stack (ID No. 3), consisting of the following components:
 - (1) two (2) skid-mounted 2,000 scfm landfill gas blowers,
 - (2) a vertical HPDE condensate knockout,
 - (3) a utility-type flare with a maximum landfill gas flow rate of 4,000 scfm, and
 - (4) a Programmable Logic Controller (PLC);
- (d) one (1) Vertical Vaporator™ system coupled with an enclosed landfill gas flare, identified as Unit 4, for leachate disposal and landfill gas combustion, with a maximum landfill gas flow rate of 3,000 scfm, exhausting through one (1) stack (ID No. 4), consisting of the following components:
 - (1) one (1) skid-mounted landfill gas blower,
 - (2) one (1) enclosed flare with a maximum heat input of 90 million (MM) British thermal units (Btu) per hour,
 - (3) a skid-mounted Vertical Vaporator™ unit,
 - (4) one (1) 8,000 gallon double walled leachate process tank, and
 - (5) a Programmable Logic Controller (PLC).

The following additional insignificant activities are also being added to the source:

- (a) Paved and unpaved roads;
- (b) Bulldozing operations; and
- (c) Dirt piling and handling.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.
6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

The proposed operating conditions applicable to these emission units are attached to this Source Modification approval. These proposed operating conditions shall be incorporated into the Part 70 operating permit as an administrative amendment (AA# 049-11212-00029) in accordance with 326 IAC 2-7-10.5(l)(1) and 326 IAC 2-7-11.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call Trish Earls at (973) 575-2555, ext. 3219, or call (800) 451-6027, press 0 and ask for extension 3-6878.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
TE/EVP

cc: File - Noble County
U.S. EPA, Region V
Noble County Health Department
Air Compliance Section Inspector Doyle Houser
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

County Line Landfill
Argos, Indiana
Permit Reviewer: Autumn M. Marker

First Significant Source Modification: 049-10987
Modified by TE/EVP

Page 3 of 2
OP No. T049-9734-00029

PART 70 OPERATING PERMIT OFFICE OF AIR MANAGEMENT

**County Line Landfill
7922 North Old US Highway 31
Argos, Indiana 46501**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 and 326 IAC 2-1-3.2 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

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|---|--|
| Operation Permit No.: T049-9734-00029 | |
| Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Management | Issuance Date: March 10, 1999 |
| First Significant Source Modification: 049-10987 | Pages Affected: 3, 3a, 4, 4a, 26-40, 40a, 42a, 45a |
| Issued by: Paul Dubenetzky, Branch Chief Office of Air Management | Issuance Date: |

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

- C.13 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]
- C.14 Risk Management Plan [326 IAC 2-7-5(12)] [40 CFR 68.215]
- C.15 Compliance Monitoring Plan - Failure to Take Response Steps [326 IAC 2-7-5]
- C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

- C.17 Emission Statement [326 IAC 2-7-5(3)(C)(iii)] [326 IAC 2-7-5(7)] [326 IAC 2-7-19(c)]
- C.18 Monitoring Data Availability [326 IAC 2-7-6(1)] [326 IAC 2-7-5(3)]
- C.19 General Record Keeping Requirements [326 IAC 2-7-5(3)]
- C.20 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

Stratospheric Ozone Protection

- C.21 Compliance with 40 CFR 82 and 326 IAC 22-1

D.1 FACILITY OPERATION CONDITIONS - A municipal solid waste landfill and eight (8) passive open flares

Emission Limitations and Standards [326 IAC 2-7-5(1)]

- D.1.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]
- D.1.2 Municipal Solid Waste Landfill NSPS [326 IAC 12] [40CFR 60.752, Subpart WWW]
- D.1.3 Operational Standards for Collection and Control Systems [40CFR 60.753]
- D.1.4 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

Compliance Determination Requirements

- D.1.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [40CFR 60.754]

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

- D.1.6 Monitoring [40CFR 60.756]
- D.1.7 Compliance Provisions [40CFR 60.755]

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

- D.1.8 Non Methane Organic Compound (NMOC) Rate Calculation [40CFR 60.754]
- D.1.9 Reporting Requirements [40CFR 60.757]
- D.1.10 Record Keeping Requirements [326 IAC 12] [40CFR 60.758]
- D.1.11 Record Keeping Requirements
- D.1.12 Reporting Requirements

D.2 FACILITY OPERATION CONDITIONS - One (1) 35 gallon parts washing machine

Emission Limitations and Standards [326 IAC 2-7-5(1)]

- D.2.1 Volatile Organic Compound (VOC)
- D.2.2 Volatile Organic Compound (VOC)

Compliance Determination Requirements

- D.2.3 Testing Requirements [326 IAC 2-7-6(1),(6)]

D.3 FACILITY OPERATION CONDITIONS - Dirt Piling and Handling

Emission Limitations and Standards [326 IAC 2-7-5(1)]

- D.3.1 Particulate Matter (PM) [326 IAC 6-3-2]
- D.3.2 Particulate Matter (PM) [326 IAC 2-2]

Compliance Determination Requirements

- D.3.3 Testing Requirements [326 IAC 2-7-6(1),(6)]

Certification
Emergency/Deviation Occurrence Report
Quarterly Report Form
Semi-Annual Compliance Monitoring Report

SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary municipal solid waste landfill.

Responsible Official: Steven C. Smith
Source Address: 7922 North Old US Highway 31, Argos, Indiana 46501
Mailing Address: RR1 Box 261, Argos, Indiana 46501
SIC Code: 4953
County Location: Fulton County
County Status: Attainment for all criteria pollutants
Source Status: Part 70 Permit Program
Major Source, under PSD
Major Source, Section 112 of the Clean Air Act

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) municipal solid waste landfill with a design capacity of 7.171134 million megagrams (Mg).
- (b) Eight (8) passive open flares with a maximum capacity of 200 cubic feet per minute (cfm) each.
- (c) one (1) blower/flare station, capable of combusting 4,000 standard cubic feet per minute (scfm) of landfill gas, identified as Unit 3, exhausting through one (1) stack (ID No. 3), consisting of the following components:
 - (1) two (2) skid-mounted 2,000 scfm landfill gas blowers,
 - (2) a vertical HPDE condensate knockout,
 - (3) a utility-type flare with a maximum landfill gas flow rate of 4,000 scfm, and
 - (4) a Programmable Logic Controller (PLC);
- (d) one (1) Vertical Vaporator™ system coupled with an enclosed landfill gas flare, identified as Unit 4, for leachate disposal and landfill gas combustion, with a maximum landfill gas flow rate of 3,000 scfm, exhausting through one (1) stack (ID No. 4), consisting of the following components:
 - (1) one (1) skid-mounted landfill gas blower,
 - (2) one (1) enclosed flare with a maximum heat input of 90 million (MM) British thermal units (Btu) per hour,
 - (3) a skid-mounted Vertical Vaporator™ unit,
 - (4) one (1) 8,000 gallon double walled leachate process tank, and
 - (5) a Programmable Logic Controller (PLC).

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) One (1) 35 gallon parts washing machine with an annual throughput of 360 gallons and a monthly throughput of 30 gallons; and
- (b) Dirt piling and handling.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (a) One (1) municipal solid waste landfill with a design capacity of 7.171134 million megagrams (Mg).
- (b) Eight (8) passive open flares with a maximum capacity of 200 cubic feet per minute (cfm) each.
- (c) one (1) blower/flare station, capable of combusting 4,000 standard cubic feet per minute (scfm) of landfill gas, identified as Unit 3, exhausting through one (1) stack (ID No. 3), consisting of the following components:
 - (1) two (2) skid-mounted 2,000 scfm landfill gas blowers,
 - (2) a vertical HPDE condensate knockout,
 - (3) a utility-type flare with a maximum landfill gas flow rate of 4,000 scfm, and
 - (4) a Programmable Logic Controller (PLC);
- (d) one (1) Vertical Vaporator™ system coupled with an enclosed landfill gas flare, identified as Unit 4, for leachate disposal and landfill gas combustion, with a maximum landfill gas flow rate of 3,000 scfm, exhausting through one (1) stack (ID No. 4), consisting of the following components:
 - (1) one (1) skid-mounted landfill gas blower,
 - (2) one (1) enclosed flare with a maximum heat input of 90 million (MM) British thermal units (Btu) per hour,
 - (3) a skid-mounted Vertical Vaporator™ unit,
 - (4) one (1) 8,000 gallon double walled leachate process tank, and
 - (5) a Programmable Logic Controller (PLC).

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart WWW.

D.1.2 Municipal Solid Waste Landfill NSPS [326 IAC 12] [40CFR 60.752, Subpart WWW]

The municipal solid waste landfill has a design capacity greater than 2.5 million megagrams (Mg) and shall either comply with 40CFR 60.752 (b)(2) or calculate the non methane organic compound (NMO) emission rate for the landfill using the procedures specified in 40CFR 60.754.

D.1.3 Operational Standards for Collection and Control Systems [40CFR 60.753]

In order to comply with 40CFR 60.752 (b)(2)(ii) the Permittee shall:

- (1) Operate the collection system such that gas is collected from each area, cell, or group of cells in the municipal solid waste landfill in which solid waste has been in place for five years if active or 2 years or more if closed or at final grade.
- (2) Operate the collection system with negative pressure at each wellhead except under the following conditions:

- (a) Fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 40CFR 60.757(f)(1).
 - (b) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.
 - (c) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Office of Air Management (OAM).
- (3) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55EC and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.
 - (a) The nitrogen level shall be determined using Method 3C, unless an alternative method is established as allowed by 40CFR 60.752 (b)(2)(i).
 - (b) Unless an alternative test method is established as allowed by 40CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are ± 10 percent.
- (4) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.
- (5) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.
- (6) Operate the control system at all times when the collected gas is routed to the system.
- (7) If monitoring demonstrates that the operational requirements in 40CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40CFR 60.755(a)(3) through (5) or 40CFR 60.755(c). If corrective actions are taken as specified in 40CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40CFR 60.753.

D.1.4 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The input of landfill gas to the blower/flare station, identified as Unit 3, shall be limited to 972 million (MM) standard cubic feet (scf) per twelve (12) consecutive month period, rolled on a monthly basis. This shall limit CO emissions from this modification to less than 250 tons per year, therefore, this modification is not subject to the requirements of 326 IAC 2-2 and 40 CFR 52.21.

Compliance Determination Requirements

D.1.5 Testing Requirements [326 IAC 2-7-6(1),(6)] [40CFR 60.754]

(1) Pursuant to 40CFR 60.754(b):

After installation of a collection and control system in compliance with 40CFR 60.755, the Permittee shall calculate the non methane organic compound (NMOC) emission rate for purposes of determining when the system can be removed using the following equation:

$$M_{\text{NMOC}} = 1.89 \times 10^{-3} Q_{\text{LFG}} C_{\text{NMOC}}$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

Q_{LFG} = flow rate of landfill gas, cubic meters per minute

C_{NMOC} = NMOC concentration, parts per million by volume as hexane

- (a) The flow rate of landfill gas, Q_{LFG} , shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of 40CFR 60.
- (b) The average NMOC concentration, C_{NMOC} , shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of 40CFR 60. If using Method 18 of appendix A of 40CFR 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The Permittee shall divide the NMOC concentration from Method 25C of appendix A of 40CFR 60 by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.
- (c) The Permittee may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Office of Air Management.

(2) Pursuant to 40CFR 60.754(d):

For the performance testing required in 40CFR 60.752(b)(2)(iii)(B), Method 25 or Method 18 of appendix A of 40CFR 60 shall be used to determine compliance with 98 weight percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Office of Air Management (OAM) as provided by 40CFR 60.752(b)(2)(i)(B). If using Method 18 of appendix A, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

$$\text{Control Efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}})$$

where,

$NMOC_{in}$ = mass of NMOC entering the control device

$NMOC_{out}$ = mass of NMOC exiting control device

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.6 Monitoring [40CFR 60.756]

Except as provided in 40CFR 60.752(b)(2)(i)(B),

- (1) The Permittee seeking to comply with 40CFR 60.752(b)(2)(ii)(A) for an active gas collection shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:
 - (a) Measure the gauge pressure in the gas collection header on a monthly basis as provided in 40CFR 60.755(a)(3);
 - (b) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in 40CFR 60.755(a)(5); and
 - (c) Monitor temperature of the landfill gas on a monthly basis as provided in 40CFR 60.755(a)(5).
- (2) The Permittee seeking to comply with 40CFR 60.752(b)(2)(iii) using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment:
 - (a) A temperature monitoring device equipped with a continuous recorder and having minimum accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius of ± 0.5 EC, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 megawatts.
 - (b) A device that records flow to or bypass of the control device. The Permittee shall either; install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen (15) minutes; or secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.
- (3) The Permittee seeking to comply with 40CFR 60.752(b)(2)(iii) using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
 - (a) Heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame
 - (b) A device that records flow to or bypass of the flare.

The Permittee shall either install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every fifteen minutes; or secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

- (4) The Permittee seeking to comply with 40CFR 60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Office of Air Management (OAM) as provided in 40CFR 60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Office of Air Management (OAM) shall review the information and either approve it, or request that additional information be submitted. The Office of Air Management (OAM) may specify additional monitoring procedures.
- (5) The Permittee seeking to install a collection system that does not meet the specifications in 40CFR 60.759 or seeking to monitor alternative parameters to those required by 40CFR 60.753 through 40CFR 60.756 shall provide information satisfactory to the Office of Air Management (OAM) as provided in 40CFR 60.752(b)(2)(i)(B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Office of Air Management (OAM) may specify additional appropriate monitoring procedures.
- (6) The Permittee seeking to demonstrate compliance with 40CFR 60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in 40CFR 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

D.1.7 Compliance Provisions [40CFR 60.755]

- (1) Except as provided in 40CFR 60.752(b)(2)(i)(B), the specified methods below shall be used to determine whether the gas collection system is in compliance with 40CFR 60.752(b)(2)(i).
 - (a) For the purpose of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with 60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollution Emission Factors (AP-42) or other site-specific values demonstrated to be appropriate and approved by the Office of Air Management (OAM). If k has been determined as specified in 40CFR 60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R (e^{-kc} - e^{-kt})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years.

c = time since closure, years (for an active landfill $c = 0$ and $e^{-kc} = 1$)

For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i})$$

where,

Q_M = maximum expected gas generation flow rate, cubic meters per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, megagrams

t_i = age of the i^{th} section, years

If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in 40CFR 60.755(a)(1)(i) and (ii). If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in 40CFR 60.755(a)(1)(i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

- (b) For the purposes of determining sufficient density of gas collector for compliance with 40CFR 60.752 (b)(2)(ii)(A)(2), the Permittee shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Office of Air Management (OAM), capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.
- (c) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40CFR 60.752(b)(2)(ii)(A)(3), the Permittee shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within five (5) calendar days, except for the three conditions allowed under 40CFR 60.753(b). If negative pressure cannot be achieved without excess air infiltration within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.
- (d) The Permittee is not required to expand the system as required in 40CFR 60.755(a)(3) during the first 180 days after gas collection system start-up.
- (e) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the Permittee shall monitor each well monthly for temperature and nitrogen or oxygen as provided in 40CFR 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within five (5) calendar days. If correction of the exceedance cannot be achieved within fifteen (15) calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

- (f) If the Permittee seeks to demonstrate compliance with 40CFR 60.752(b)(2)(ii)(A)(4) through the use of a collection system not conforming to the specifications provided in 40CFR 60.759 shall provide information satisfactory to the Office of Air Management (OAM) as specified in 40CFR 60.752 (b)(2)(i)(C) demonstrating that off-site migration is being controlled.
- (2) For purposes of compliance with 40CFR 60.753(a), the Permittee shall place each well or design component of a controlled landfill as specified in the approved design plan as provided in 40CFR 60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of five (5) years or more if active or two (2) years or more if closed or at final grade.
- (3) The following procedures shall be used for compliance with the surface methane operational standard as provided in 40CFR 60.753 (d):
 - (a) After installation of the collection system, the Permittee shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in 40CFR 60.755(d).
 - (b) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from perimeter wells.
 - (c) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of 40CFR60, except that the probe inlet shall be placed within five(5) to ten(10) centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.
 - (d) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in 40CFR 60.755(c)(4)(i) through (v) should be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of 40CFR 60.753(d).

The location of each monitored exceedance shall be marked and the location recorded.

Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within ten (10) calendar days of detecting the exceedance.

If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within ten (10) days of the second exceedance. If re-monitoring shows a third exceedance for the same location, the action specified in paragraph 40CFR 60.755(c)(4)(v) of this section shall be taken, and no further monitoring of that location is required until the action specified in 40CFR 60.755(c)(4)(v) has been taken.

Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in 40CFR 60.755(c)(4)(ii) or (iii) shall be re-monitored one (1) month from the initial exceedance. If the one (1)-month re-monitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one (1)-month re-monitoring shows an exceedance, the actions specified in 40CFR 60.755(c)(4)(iii) or (v) shall be taken.

For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Office of Air Management (OAM) for approval.

- (e) The Permittee shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.
- (4) The Permittee seeking to comply with the provisions of 40CFR 60.755(c) shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:
- (a) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of 40CFR 60, except the "methane" shall replace all references to volatile organic compound (VOC).
 - (b) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.
 - (c) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of 40CFR 60, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of 40CFR 60 shall be used.
 - (d) The calibration procedures provided in section 4.2 of Method 21 of appendix A of 40CFR 60 shall be followed immediately before commencing a surface monitoring survey.
- (5) The provisions of 40CFR 60.755 shall apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction, shall not exceed five (5) days for collection systems and shall not exceed one (1) hour for treatment or control devices.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.8 Non Methane Organic Compound (NMOC) Rate Calculation [40CFR 60.754]

Pursuant to 40CFR 60.754 the Permittee shall:

- (1) Calculate the non methane organic compound (NMOC) emission rate using either the equation provided in 40 CFR 60.754(a)(1)(i) or the equation provided in 40 CFR 60.754(a)(1)(ii). Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in 40 CFR 60.754(a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph 40 CFR 60.754(a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k , 170 cubic meters per megagram for L_o , and 4,000 parts per million by volume as hexane for the C_{NMOC} . For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorological site, the k value to be used is 0.02 per year.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, megagrams

t_i = age of the i^{th} section, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2 L_o R (e^{-kc} - e^{-kt}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

t = age of landfill, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

c = time since closure, years. For active landfill $c = 0$ and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained.

- (2) Tier 1. The Permittee shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year.

If the NMOC emission rate calculated in 40CFR 60.754(a)(1) is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in 40CFR 60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under 40CFR 60.752(b)(1). If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the Permittee shall either comply with 40CFR 60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in 40CFR 60.754(a)(3).

Tier 2. The Permittee shall determine the NMOC concentration using the following sampling procedure. The Permittee shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The Permittee shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25C of appendix A of 40 CFR 60 or Method 18 of appendix A of 40 CFR 60. If using Method 18 of appendix A of 40 CFR 60, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples are taken, all samples shall be used in analysis. The Permittee shall divide the NMOC concentration from Method 25C of appendix A by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

The Permittee shall recalculate the NMOC mass emission rate using the equations provided in 40CFR 60.754(a)(1)(i) and (a)(1)(ii) and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in 40CFR 60.754(a)(1).

If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, then the Permittee shall either comply with 40CFR 60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in 40CFR 60.754(a)(4).

If the resulting NMOC mass emission rate is less than 50 megagrams per year, the Permittee shall submit a periodic estimate of the emission rate report as provided in 40CFR 60.757(b)(1) and retest the site-specific NMOC concentration every five (5) years using the methods in 40CFR 60.754(a)(3).

Tier 3. The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of 40 CFR 60. The Permittee shall estimate the NMOC mass emission rate using equations in 40 CFR 60.754(a)(1)(i) or (a)(1)(ii) and using a site-specific methane generation rate constant k , and the site-specific NMOC concentration as determined in 40 CFR 60.754(a)(3) instead of the default values provided in 40 CFR 60.754(a)(1). The Permittee shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the Permittee shall comply with 40CFR 60.752(b)(2).

If the NMOC mass emission rate is less than 50 megagrams per year, then the Permittee shall submit a periodic emission rate report as provided in 40CFR 60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in 40CFR 60.757(b)(1) using the equations in 40CFR 60.754(a)(1) and using the site-specific methane generation rate constant and NMOC concentration obtained in 40CFR 60.754(a)(3). The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

The Permittee may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in 40CFR 60.754(a)(3) and (a)(4) if the method has been approved by the Administrator.

- (3) When calculating emissions for PSD purposes, the owner or operator of each municipal solid waste landfill subject to 40CFR 60.754 shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in 40CFR 51.166 or 40CFR 52.21 using AP-42 or other approved measurement procedures. If a collection system, which complies with the provisions of 40CFR 60.752(b)(2) is already installed, the Permittee shall estimate the NMOC emission rate using the procedures provided in 40CFR 60.754(b).

The Permittee's initial NMOC report was submitted on October 6, 1997.

D.1.9 Reporting Requirements [40CFR 60.757]

Pursuant to 40CFR 60.757, except as provided in 40CFR 60.752(b)(2)(i)(B), the Permittee shall:

- (1) Submit an initial design capacity report to the Office of Air Management (OAM) no later than 90 days after October 8, 1997. An amended design capacity report shall be submitted to the Office of Air Management (OAM) providing notification of any increase in the design capacity of the landfill. The Permittee's initial design capacity report was submitted on June 10, 1996.
- (2) Submit a non methane organic compound (NMOC) emission rate report to the Office of Air Management initially and annually thereafter, except as provided for in 40CFR 60.757(b)(1)(ii) or (b) (3). The Office of Air Management (OAM) may request such additional information as may be necessary to verify the reported NMOC emission rate. The report should contain an annual or 5-year estimate of the non methane organic compound (NMOC) emission rate using the formula and procedures provided in 40CFR 60.754 (a) or (b), as applicable. The initial NMOC emission rate report may be combined with the initial design capacity report required in 40CFR 60.757(a) and shall be submitted no later than indicated in paragraphs 40 CFR 60.757(b)(1)(i)(A) and (B). June 10, 1996 for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided in 40CFR 60.757(b)(1)(ii) and (b)(3). If the estimated NMOC emission rate as reported in the annual report to the Office of Air Management (OAM) is less than 50 megagrams per year in each of the next five (5) consecutive years, the Permittee may elect to submit an estimate of the NMOC emission rate for the next five (5) year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the five (5) years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the Office of Air Management (OAM). This estimate shall be revised at least once every five (5) years. If the actual waste acceptance rate exceeds

the estimated waste acceptance rate in any year reported in the five (5) year estimate, a revised five (5) year estimate shall be submitted to the Office of Air Management. The revised estimate shall cover the five (5) year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate. The NMOC emission rate report shall include all the data, calculations, sample reports, and measurements used to estimate the annual or five (5) year emission rate. The Permittee is exempted from the requirements of 40CFR 60.757(b)(1) and (2) after the installation of a collection and control system in compliance with 40CFR 60.752 (b)(2), during such time as the system is in operation and in compliance with 40CFR 60.753 and 60.755.

- (3) Submit a collection and control system design plan to the Office of Air Management (OAM) within one (1) year of the first non methane organic compound (NMOC) emission rate report, required under 40CFR 60.757(b), in which NMOC emission rate exceeds 50 megagrams (Mg) per year; except if the Permittee elects to recalculate the NMOC emission rate after Tier 2 sampling and analysis as provided in 40CFR 60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year. If the Permittee elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in 40CFR 60.754(a)(4), and the resulting NMOC emission rate is less than 50 megagrams per year, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of 40CFR 60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Office of Air Management (OAM) within one (1) year of the first calculated emission rate exceeding 50 megagrams per year.
- (4) Submit a closure report to the Office of Air Management (OAM) within thirty days of waste acceptance cessation. The Office of Air Management (OAM) may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40CFR 258.60. If a closure report has been submitted to the Office of Air Management (OAM), no additional wastes may be placed into the landfill without filing a notification of modification as described under 40CFR 60.7(a)(4).
- (5) Submit an equipment removal report to the Office of Air Management (OAM) thirty (30) days prior to removal or cessation of operation of the control equipment. The equipment removal report shall contain all of the following items: a copy of the closure report submitted in accordance with 40CFR 60.757(d), a copy of the initial performance test report demonstrating that the fifteen (15) year minimum control period has expired, and dated copies of three (3) successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year. The Office of Air Management (OAM) may request such additional information as may be necessary to verify that all of the conditions for removal in 40CFR 60.752(b)(2)(v) have been met.

- (6) Annual reports of the following recorded information. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under 40CFR 60.8. For enclosed combustion devices and flares, reportable exceedances are defined under 40 CFR 60.758(c).
 - (a) Value and length of time for exceedance of applicable parameters monitored under 40CFR 60.756(a), (b), (c), and (d).
 - (b) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40CFR 60.756.
 - (c) Description and duration of all periods when the control device was not operating for a period exceeding one (1) hour and length of time the control device was not operating.
 - (d) All periods when the collection system was not operating in excess of five (5) days.
 - (e) Location of each exceedance of the 500 parts per million methane concentration as provided in 40CFR 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.
 - (f) Date of installation and the location of each well or collection system expansion added pursuant to 40CFR 60.755(a)(3), (b), and (c)(4).
- (7) The Permittee seeking to comply with 40CFR 40.752(b)(2)(iii) shall include the following information with the initial performance test report required under 40CFR 60.8:
 - (a) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion.
 - (b) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based.
 - (c) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material.
 - (d) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area.
 - (e) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill
 - (f) The provision for the control of off-site migration.
- (8) A summary of the above information shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit.

D.1.10 Record Keeping Requirements [326 IAC 12] [40CFR 60.758]

Pursuant to 40CFR 60.758:

- (1) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee subject to 40CFR 60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered 40 CFR 60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within four (4) hours. Either paper copy or electronic formats are acceptable.
- (2) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment listed in (a) through (d) below as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of five (5) years. Records of control device vendor specifications shall be maintained until removal.
 - (a) Where the Permittee subject to the provisions of 40CFR 60.758 seeks to demonstrate compliance with 40CFR 60.752(b)(2)(ii):

The maximum expected gas generation flow rate as calculated in 40CFR 60.755(a)(1). The Permittee may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Office of Air Management (OAM).

The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40CFR 60.759(a)(1).
 - (b) Where the Permittee subject to the provisions of 40CFR 60.758 seeks to demonstrate compliance with 40CFR 60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than 44 megawatts:

The average combustion temperature measured at least every fifteen (15) minutes and averaged over the same time period of the performance test.

The percent reduction of NMOC determined as specified in 40CFR 60.752(b)(2)(iii)(B) achieved by the control device.
 - (c) Where the Permittee subject to the provisions of 40CFR 60.758 seeks to demonstrate compliance with 40CFR 60.752(b)(2)(iii)(B)(1) through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.
 - (d) Where the Permittee subject to the provisions of 40CFR 60.758 seeks to demonstrate compliance with 40CFR 60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air -assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40CFR 60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

- (3) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in 40CFR 60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.
- (a) The following constitute exceedances that shall be recorded and reported under 40CFR 60.757(f):
- For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28EC below the average combustion temperature during the most recent performance test at which compliance with 40CFR 60.752(b)(2)(iii) was determined.
- For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under 40CFR 60.758(b)(3)(i) of this section
- (b) The Permittee subject to 40CFR 60.758 shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under 40CFR 60.756.
- (c) The Permittee subject to the provisions of 40CFR 60.758 who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with 40CFR 60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal or Federal regulatory requirements.)
- (d) The Permittee seeking to comply with the provisions of 40CFR 60.758 by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under 40CFR 60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.
- (4) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
- (a) The Permittee subject to the provisions of 40CFR 60.758 shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified in 40CFR 60.755 (b).
- (b) The Permittee subject to the provisions of 40CFR 60.758 shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in 40CFR 60.759 (a)(3)(i) as well as any non-productive areas excluded from collection as provided in 40CFR 60.759 (a)(3)(ii).

- (5) Except as provided in 40 CFR 60.752(b)(2)(i)(B), the Permittee subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in 40CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.
- (6) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

D.1.11 Record Keeping Requirements

To document compliance with Condition D.1.4, the Permittee shall maintain records of the input of landfill gas, in standard cubic feet, to the blower/flare station on a monthly basis.

D.1.12 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.4 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

(b) Dirt piling and handling.

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the dirt piling and handling operation shall not exceed 12.6 pounds per hour when operating at a process weight rate of 10,702 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate up to 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour; and
P = process weight rate in tons per hour

D.3.2 Particulate Matter (PM) [326 IAC 2-2]

Any change or modification which may increase potential PM emissions from the dirt piling and handling operation, the paved and unpaved roadways (insignificant activity), the bulldozing operations (insignificant activity), and the blower/flare station or the Vertical Vaporator system, to 250 tons per year or greater, shall require OAM's prior approval before such change can occur.

Compliance Determination Requirements

D.3.3 Testing Requirements [326 IAC 2-7-6(1),(6)][326 IAC 2-1.1-11]

The Permittee is not required to test this facility by this permit since it is a fugitive emission source.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION**

Part 70 Quarterly Report

Source Name: County Line Landfill
Source Address: 7922 North Old US Highway 31, Argos, Indiana 46501
Mailing Address: RR1 Box 261, Argos, Indiana 46501
Part 70 Permit No.: T049-9734-00029
Significant Source Modification No.: 049-10987-00029
Facility: blower/flare station, identified as Unit 3
Parameter: CO emissions
Limit: The input of landfill gas to the blower/flare station, identified as Unit 3, shall be limited to 972 million (MM) standard cubic feet (scf) per twelve (12) consecutive month period, rolled on a monthly basis.

YEAR: _____

| Month | Column 1 | Column 2 | Column 1 + Column 2 |
|-------|--|--|--|
| | Landfill Gas Input This Month (scf) | Landfill Gas Input Previous 11 Months (scf) | 12 Month Total Landfill Gas Input (scf) |
| | | | |
| | | | |
| | | | |

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for a Part 70 Significant Source Modification

| | |
|--------------------------------------|--|
| Source Name: | County Line Landfill |
| Source Location: | 7922 North Old US Highway 31, Argos, Indiana 46501 |
| County: | Fulton |
| SIC Code: | 4953 |
| Operation Permit No.: | T049-9734-00029 |
| Operation Permit Issuance Date: | March 10, 1999 |
| Significant Source Modification No.: | 049-10987-00029 |
| Permit Reviewer: | Trish Earls/EVP |

On August 17, 1999, the Office of Air Management (OAM) had a notice published in the Rochester Sentinel, Rochester, Indiana, stating that County Line Landfill had applied for a Significant Source Modification to a Part 70 permit for the addition of a blower/flare station and a Vertical Vaporator™ system for landfill gas combustion and leachate disposal to the existing landfill. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On September 16, 1999, and October 26, 1999, Edwin Valis of IT/EMCON submitted comments on behalf of County Line Landfill on the proposed construction and operating permit. The summary of the comments and corresponding responses is as follows:

Comment #1

IDEM considers PM emissions from paved and unpaved roads and bulldozing operations to be insignificant and emissions from dirt piling and handling to be significant. What is the reasoning for this determination?

Response #1

Paved and unpaved roads are considered insignificant activities because they are specifically listed as such in 326 IAC 2-7-1(21)(G)(xiii). The bulldozing operations are considered insignificant because, pursuant to 326 IAC 2-7-1(21)(A), the potential uncontrolled PM and PM-10 emissions are less than the exemption levels specified in 326 IAC 2-1.1-3(d)(1), and pursuant to 326 IAC 2-7-1(21)(B), potential uncontrolled PM-10 emissions are less than 5 pounds per hour or 25 pounds per day. After further review, it has been determined that the dirt piling and handling operations should also be considered as insignificant because potential PM and PM-10 emissions from these operations are less than 5 pounds per hour. Therefore, item (c) of the emission unit description section on page 2 of the Technical Support Document (TSD) is revised to read as follows (deletions in strikeout, additions in bold):

(c) The following fugitive particulate matter emission sources:

- (1) Paved and unpaved roads;
- (2) Bulldozing operations; and
- (3) Dirt piling and handling.

Note: Items (1) ~~and (2)~~ **through (3)** above are insignificant activities.

Section A.2 and A.3 of the Significant Source Modification and the Part 70 permit are revised to read as follows:

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]
[326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) municipal solid waste landfill with a design capacity of 7.171134 million megagrams (Mg).
- (b) Eight (8) passive open flares with a maximum capacity of 200 cubic feet per minute (cfm) each.
- (c) one (1) blower/flare station, capable of combusting 4,000 standard cubic feet per minute (scfm) of landfill gas, identified as Unit 3, exhausting through one (1) stack (ID No. 3), consisting of the following components:
 - (1) two (2) skid-mounted 2,000 scfm landfill gas blowers,
 - (2) a vertical HPDE condensate knockout,
 - (3) a utility-type flare with a maximum landfill gas flow rate of 4,000 scfm, and
 - (4) a Programmable Logic Controller (PLC);
- (d) one (1) Vertical Vaporator™ system coupled with an enclosed landfill gas flare, identified as Unit 4, for leachate disposal and landfill gas combustion, with a maximum landfill gas flow rate of 3,000 scfm, exhausting through one (1) stack (ID No. 4), consisting of the following components:
 - (1) one (1) skid-mounted landfill gas blower,
 - (2) one (1) enclosed flare with a maximum heat input of 90 million (MM) British thermal units (Btu) per hour,
 - (3) a skid-mounted Vertical Vaporator™ unit,
 - (4) one (1) 8,000 gallon double walled leachate process tank, and
 - (5) a Programmable Logic Controller (PLC); ~~and~~
- ~~(e) — Dirt piling and handling.~~

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) One (1) 35 gallon parts washing machine with an annual throughput of 360 gallons and a monthly throughput of 30 gallons; **and**
- (b) Dirt piling and handling.**

The emission unit description portion of the Significant Source Modification cover letter is revised to read as follows:

- (c) one (1) blower/flare station, capable of combusting 4,000 standard cubic feet per minute (scfm) of landfill gas, identified as Unit 3, exhausting through one (1) stack (ID No. 3), consisting of the following components:
 - ~~(a)~~(1) two (2) skid-mounted 2,000 scfm landfill gas blowers,
 - ~~(b)~~(2) a vertical HPDE condensate knockout,
 - ~~(c)~~(3) a utility-type flare with a maximum landfill gas flow rate of 4,000 scfm, and

- ~~(d)~~(4) a Programmable Logic Controller (PLC);
- (d) one (1) Vertical Vaporator™ system coupled with an enclosed landfill gas flare, identified as Unit 4, for leachate disposal and landfill gas combustion, with a maximum landfill gas flow rate of 3,000 scfm, exhausting through one (1) stack (ID No. 4), consisting of the following components:
- ~~(a)~~(1) one (1) skid-mounted landfill gas blower,
 - ~~(b)~~(2) one (1) enclosed flare with a maximum heat input of 90 million (MM) British thermal units (Btu) per hour,
 - ~~(c)~~(3) a skid-mounted Vertical Vaporator™ unit,
 - ~~(d)~~(4) one (1) 8,000 gallon double walled leachate process tank, and
 - ~~(e)~~(5) a Programmable Logic Controller (PLC).
- ~~(e)~~ — Dirt piling and handling.

The following additional insignificant activities are also being added to the source:

- (a) Paved and unpaved roads; ~~and~~
- (b) Bulldozing operations; ~~and~~
- (c) **Dirt piling and handling.**

Comment #2

In the Stack Summary section of the TSD, the exhaust temperature for the enclosed flare is listed to be 350°F. The exhaust temperature for these types of flares are usually between 1,400°F and 1,600°F. County Line Landfill requests a temperature of 1,400°F to be used in the approval.

Response #2

The Stack Summary table in the TSD is revised to read as follows (deletions in strikeout, additions in bold):

Stack Summary

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (acfm) | Temperature (°F) |
|----------|--------------------|---------------|-----------------|------------------|----------------------------|
| 3 | Utility Flare | 15 | 1.0 | 4000 | 1500 |
| 4 | Vertical Vaporator | 40 | 7.5 | 3000 | 350 1400 |

Comment #3

In the Potential to Emit table listed on page 4 of the TSD, it states “emissions from flare/vaporator represent the worst case emissions from either the open flare or the vertical vaporator since the two cannot be operated simultaneously.” The gas curve in the landfill gas management plan (EMCON, 2/96) shows landfill gas production peaking, in 2005, at 4,500 to 6,000 scfm (expected range). The open flare is sized for 4,000 scfm and the enclosed flare is sized for 3,000 scfm. The gas curve suggests that it will be possible therefore, to operate both flares simultaneously. Based on further review of the expected landfill gas generation at the County Line Landfill, it is proposed that the enclosed flare (Vertical Vaporator) be allowed unrestricted operation (i.e. 3,000 scfm inlet landfill gas flow rate) and that the open flare be restricted to annual average inlet landfill gas flow of 1,850 scfm. With these operational limitations on the two landfill gas control devices at County Line Landfill, the emissions of carbon monoxide (CO) is kept below the Prevention of Significant Deterioration (PSD) major source level of 250 tons per year, and the capacity for control falls within the expected landfill gas flow range from the landfill.

Response #3

Based on the fact that the two flares can be operated simultaneously, the potential emissions from this modification have been revised. The Emissions Calculation Summary of Appendix A has been revised to reflect the revised emissions. The Potential to Emit of Modification section of the TSD has been revised as follows (additions in bold, deletions in strikeout):

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|-----------------|---------------------------------|
| PM | 225.60 230.40 |
| PM-10 | 58.86 63.66 |
| SO ₂ | 8.80 17.00 |
| VOC | 1.10 2.02 |
| CO | 194.00 352.00 |
| NO _x | 39.40 75.10 |

| HAP's | Potential To Emit (tons/year) |
|-------------------|-------------------------------|
| Hydrogen Chloride | greater than 10 |
| TOTAL | greater than 25 |

Note: HCl is the only HAP that is has potential emissions of greater than 10 tons per year. Therefore, this was the only HAP specifically listed here.

Since the potential CO emissions are greater than 250 tons per year, the inlet landfill gas flow rate to the open flare will be limited to 972 MMscf per twelve (12) consecutive month period, rolled on a monthly basis (average of 1,850 scfm). This limitation will limit CO emissions from this modification to an existing minor PSD source to less than 250 tons per year so that the requirements of 326 IAC 2-2 (PSD) do not apply.

The Potential to Emit of Modification After Issuance section of the TSD, has been revised as follows

(additions in bold, deletions in strikethrough):

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

| | Potential to Emit (tons/year) | | | | | | |
|-----------------------------|------------------------------------|----------------------------------|---------------------------------|--------------------------------|------------------------------------|----------------------------------|----------------------------------|
| Process/facility | PM | PM-10 | SO ₂ | VOC | CO | NO _x | HAPs |
| Flare/Vaporator | 6.20 | 6.20 | 8.80 8.20 | 1.10 0.92 | 194.00 158.00 | 39.40 | 39.40 |
| Blower/Flare Station | 2.20 | 2.20 | 4.10 | 0.53 | 89.90 | 16.50 | 12.90 |
| Fugitive Emissions | 219.40 | 52.66 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 225.60 227.80 | 58.86 61.06 | 8.80 12.30 | 1.10 1.45 | 194.00 247.90 | 39.40 55.90 | 39.40 52.30 |
| PSD Significant Level | 250 | 250 | 250 | 250 | 250 | 250 | N/A |

Note: Emissions from Flare/Vaporator represent the worst case emissions from either the Open Flare or the Vertical Vaporator since the two cannot be operated simultaneously.

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

An additional page has been added to Appendix A, page 3 of 5, to show the limited emission calculations for the blower/flare station (open flare).

The portion of the State Rule Applicability - Entire Source section of the TSD which discusses the applicability of 326 IAC 2-2 (PSD) is revised as follows (additions in bold, deletions in strikethrough):

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

~~This proposed modification does not have potential emissions of 250 tons per year or more of any air pollutant subject to regulation under the Clean Air Act and it is not one of the twenty-eight (28) listed sources.~~ **The input of landfill gas to the blower/flare station, identified as Unit 3, shall be limited to 972 million (MM) standard cubic feet (scf) per twelve (12) consecutive month period, rolled on a monthly basis. This shall limit CO emissions from this modification to less than 250 tons per year, therefore, pursuant to 326 IAC 2-2 this modification is a minor modification to an existing minor source. However, the source will be a major source after this proposed modification is completed.**

Condition D.1.4 of the Significant Source Modification and the Part 70 permit is revised to read as follows (additions in bold, deletions in strikethrough):

D.1.4 ~~Carbon Monoxide (CO)~~ **PSD Minor Limit** [326 IAC 2-2] **[40 CFR 52.21]**

Any change or modification which may increase potential CO emissions from the blower/flare station or the Vertical Vaporator system to 250 tons per year or greater, shall require OAM's prior approval before such change can occur. The input of landfill gas to the blower/flare station, identified as Unit 3, shall be limited to 972 million (MM) standard cubic feet (scf) per twelve (12) consecutive month period, rolled on a monthly basis. This shall limit CO emissions from this modification to less than 250 tons per year, therefore, this modification is not subject to the requirements of 326 IAC 2-2 and 40 CFR 52.21.

Two (2) new conditions have been added to section D.1, numbered D.1.11 and D.1.12, requiring record keeping and reporting of the input of landfill gas to the blower/flare station (open flare) to demonstrate compliance with the landfill gas input limit specified in condition D.1.4. The conditions read as follows:

D.1.11 Record Keeping Requirements

To document compliance with Condition D.1.4, the Permittee shall maintain records of the input of landfill gas, in standard cubic feet, to the blower/flare station on a monthly basis.

D.1.12 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.4 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

A Quarterly Report form has been added to the Significant Source Modification and the Part 70 permit, as page 45a, and reads as shown on the next page.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
COMPLIANCE DATA SECTION**

Part 70 Quarterly Report

Source Name: County Line Landfill
Source Address: 7922 North Old US Highway 31, Argos, Indiana 46501
Mailing Address: RR1 Box 261, Argos, Indiana 46501
Part 70 Permit No.: T049-9734-00029
Significant Source Modification No.: 049-10987-00029
Facility: blower/flare station, identified as Unit 3
Parameter: CO emissions
Limit: The input of landfill gas to the blower/flare station, identified as Unit 3, shall be limited to 972 million (MM) standard cubic feet (scf) per twelve (12) consecutive month period, rolled on a monthly basis.

YEAR: _____

| Month | Column 1 | Column 2 | Column 1 + Column 2 |
|-------|--|--|--|
| | Landfill Gas Input This Month (scf) | Landfill Gas Input Previous 11 Months (scf) | 12 Month Total Landfill Gas Input (scf) |
| | | | |
| | | | |
| | | | |

9 No deviation occurred in this quarter.

9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Comment #4

Regarding the non methane organic compound (NMOC) emission rate calculation as listed on page 6 of the TSD, the NMOC concentration used is the Tier 2 concentration of 327 ppmv as hexane. County Line Landfill requests that the AP-42 Section 2.4 default NMOC concentration of 595 ppmv as hexane be used to determine the facility potential to emit. The defaults for "k" and "Lo" should be the values provided as defaults in the AP-42 Section 2.4 which are 0.04 and 100, respectively.

Response #4

Pursuant to 40 CFR 60.752(b)(1)(ii), the NMOC emission rate from the landfill is to be calculated using the procedures specified in 40 CFR 60.754(a)(1) until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The values for the NMOC concentration, "k", and "Lo" specified on page 6 of the TSD, are those values specified in 40 CFR 60.754(a)(1). After installation of a collection and control system in compliance with 40CFR 60.755, the Permittee shall calculate the non methane organic compound (NMOC) emission rate using the equation listed in 40 CFR 60.754(b). To clarify that the default values listed in the TSD for the NMOC concentration, "k", and "Lo" are only to be used until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year or the landfill is closed, this paragraph will now be listed under the requirements for when the NMOC emission rate is less than 50 megagrams per year which are on page 5 of the TSD. The rule applicability discussion for 40 CFR 60.750, Subpart WWW in the TSD is now revised as follows:

- (a) The existing municipal solid waste landfill is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.750, Subpart WWW) because the municipal solid waste landfill commenced construction, reconstruction or modification or began accepting waste on or after May 30, 1991. However, this proposed modification is not subject to the requirements of this NSPS until the Permittee has calculated non methane organic compound (NMOC) emissions of greater than 50 megagrams per year.

Pursuant to 40 CFR 60.752, a municipal solid waste landfill with a design capacity greater than 2.5 million megagrams (Mg) shall either comply with 40CFR 60.752 (b)(2) or calculate the non methane organic compound emission (NMOC) rate for the landfill using the procedures specified in 40 CFR 60.754. (The Permittee's initial design capacity report was submitted on December 16, 1996. The Permittee's initial NMOC report was submitted on October 6, 1997. The Permittee's design plan was submitted on June 10, 1996.)

If the Permittee has calculated non methane organic compound (NMOC) emissions less than 50 megagrams (Mg) per year, the Permittee shall:

- (1) Submit an annual NMOC report to the Office of Air Management (OAM);

and
 - (2) Recalculate the non methane organic compound (NMOC) emission rate annually using the procedures specified in 40CFR 60.754(a)(1) until such time as the calculated non methane organic compound (NMOC) emission rate is equal to or greater than 50 megagrams (Mg) per year or the landfill is closed.
- (A) Pursuant to 40CFR 60.754(a)(1), the Permittee shall calculate the non methane organic compound (NMOC) rate using either of the equations listed below. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o , and 4,000 parts per million by volume as hexane for the C_{NMOC} .**
- (i) The following equation when the actual year-to-year solid waste acceptance rate is known.**

$$M_{\text{NMOC}} = \sum_{i=1}^E 2 k L_o M_i (e^{-kt_i}) (C_{\text{NMOC}}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, megagrams

t_i = age of the i^{th} section, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of 40CFR 60.758(d)(2) are followed.

- (ii) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{\text{NMOC}} = 2 L_o R (e^{-kc} - e^{-kt}) (C_{\text{NMOC}}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

t = age of landfill, years

C_{NMOC} = concentration of NMOC < parts per million by volume as hexane

c = time since closure, years. For active landfill $c = 0$ and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of 40CFR 60.758(d)(2) are followed.

When NMOC emissions are calculated to be greater than 50 megagrams per year, the following requirements shall be applicable to the entire source including this proposed modification pursuant to 40 CFR 60.752:

- (1) Submit a collection and control system design plan prepared by a professional engineer that meets the requirements of 40CFR 60.752 (b)(2)(ii) to the Office of Air Management (OAM) within one year after calculated non methane organic compound (NMOC)

emissions of greater than 50 megagrams (Mg) per year. The design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of 40CFR 60.753 through 40CFR 60.758 that are proposed by the Permittee. The design plan shall either conform with specifications for active collection systems in 40 CFR 60.759 or include a demonstration to the Office of Air Management's (OAM) satisfaction of the sufficiency of the alternative provisions to 40 CFR 60.759. The Office of Solid and Hazardous Waste Management (OSHWM) shall review the design plan and can either approve, disapprove, or request additional information be submitted by the Permittee.

- (2) Install a collection and control system within eighteen months of the submittal of the design plan that effectively captures the gas generated within the landfill.

An active collection system shall:

- (A) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment.
- (B) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of five years or more if active or two years or more if closed or at final grade.
- (C) Collect gas at a sufficient extraction rate.
- (D) Be designed to minimize off-site migration of subsurface gas.

A passive collection system shall:

- (A) Comply with the provisions specified in paragraphs A, B, and D above.
- (B) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under 40 CFR 258.40 of the title.

- (3) Route all collected gas to an open flare collection system that is designed and operated in accordance with 40CFR 60.18.
- (4) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of 40CFR 60.753, 60.755, and 60.756.
- (5) Cap or remove the collection and control system provided that the following conditions are met:
 - (A) The landfill shall be no longer accepting solid waste and be permanently closed under the requirements of §258.60 of this title. A closure report shall be submitted to the Office of Solid and Hazardous Waste Management (OSHWM) as provided in 40CFR 60.757 (d);
 - (B) The collection and control system shall have been in operation a minimum of fifteen years;

and
 - (C) The calculated non methane organic compound (NMOC) gas produced by the

landfill shall be less than 50 megagrams (Mg) per year on three consecutive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

Pursuant to 40CFR 60.754 the Permittee shall calculate the non-methane organic compound (NMOC) rate using either of the equations listed below. The values to be used in both equations are 0.05 per year for k , 170 cubic meters per megagram for L_0 , and 4,000 parts per million by volume as hexane for the C_{NMOC} .

- (1) The following equation when the actual year-to-year solid waste acceptance rate is known:

$$M_{NMOC} = \sum_{i=1}^n 2 k L_0 M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year
 k = methane generation rate constant, year⁻¹
 L_0 = methane generation potential, cubic meters per megagram solid waste
 M_i = mass of solid waste in the i^{th} section, megagrams
 t_i = age of the i^{th} section, years
 C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
 3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of 40CFR 60.758(d)(2) are followed.

- (2) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{NMOC} = 2 L_0 R (e^{-kc} - e^{-kt}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year
 L_0 = methane generation potential, cubic meters per megagram solid waste
 R = average annual acceptance rate, megagrams per year
 k = methane generation rate constant, year⁻¹
 t = age of landfill, years
 C_{NMOC} = concentration of NMOC, parts per million by volume as hexane
 c = time since closure, years. For active landfill $c = 0$ and $e^{-kc} = 1$
 3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of 40CFR 60.758(d)(2) are followed.

If the calculated non-methane organic compound (NMOC) emission rate is equal to or greater than 50 megagrams per year, then the Permittee shall either comply with the provisions of 40CFR 60.752 (b)(2) or determine a site-specific non-methane organic compound (NMOC) emission rate using the procedures described in 40CFR 60.754 (a)(3).

- (1) In order to comply with 40CFR 60.752 (b)(2)(ii) the Permittee shall:

(A) Operate the collection system such that gas is collected from each area, cell, or

group of cells in the municipal solid waste landfill in which solid waste has been in place for five years if active or 2 years or more if closed or at final grade.

- (B) Operate the collection system with negative pressure at each wellhead except under the following conditions:
 - (i) Fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 40CFR 60.757(f)(1).
 - (ii) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.
 - (iii) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Office of Air Management (OAM).
- (C) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55EC and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.
 - (i) The nitrogen level shall be determined using Method 3C, unless an alternative method is established as allowed by 40CFR 60.752 (b)(2)(i).
 - (ii) Unless an alternative test method is established as allowed by 40CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are ± 10 percent.
- ~~(A)~~(D) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.
- ~~(B)~~(E) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be

shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.

~~(E)~~(F) Operate the control system at all times when the collected gas is routed to the system.

~~(D)~~(G) If monitoring demonstrates that the operational requirement in 40CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40CFR 60.752(a)(3) through (5) or 40CFR 60.755(c). If corrective actions are taken as specified in 40CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40CFR 60.753.

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for a Part 70 Significant Source Modification.

Source Background and Description

| | |
|---|--|
| Source Name: | County Line Landfill |
| Source Location: | 7922 North Old US Highway 31, Argos, IN 46501 |
| County: | Fulton |
| SIC Code: | 4953 |
| Operation Permit No.: | T049-9734-00029 |
| Operation Permit Issuance Date: | March 10, 1999 |
| Significant Source Modification No.: | 049-10987-00029 |
| Permit Reviewer: | Trish Earls/EVP |

The Office of Air Management (OAM) has reviewed a modification application from County Line Landfill relating to the construction and operation of the following emission units and pollution control devices:

- (a) one (1) blower/flare station, capable of combusting 4,000 standard cubic feet per minute (scfm) of landfill gas, identified as Unit 3, exhausting through one (1) stack (ID No. 3), consisting of the following components:
 - (1) two (2) skid-mounted 2,000 scfm landfill gas blowers,
 - (2) a vertical HPDE condensate knockout,
 - (3) a utility-type flare with a maximum landfill gas flow rate of 4,000 scfm, and
 - (4) a Programmable Logic Controller (PLC);
- (b) one (1) Vertical Vaporator™ system coupled with an enclosed landfill gas flare, identified as Unit 4, for leachate disposal and landfill gas combustion, with a maximum landfill gas flow rate of 3,000 scfm, exhausting through one (1) stack (ID No. 4), consisting of the following components:
 - (1) one (1) skid-mounted landfill gas blower,
 - (2) one (1) enclosed flare with a maximum heat input of 90 million (MM) British thermal units (Btu) per hour,
 - (3) a skid-mounted Vertical Vaporator™ unit,
 - (4) one (1) 8,000 gallon double walled leachate process tank, and
 - (5) a Programmable Logic Controller (PLC);

(c) The following fugitive particulate matter emission sources:

- (1) Paved and unpaved roads;
- (2) Bulldozing operations; and
- (3) Dirt piling and handling.

Note: Items (1) and (2) above are insignificant activities.

History

On May 21, 1999, County Line Landfill submitted an application to the OAM requesting to add two (2) separate control devices, which are a utility-type landfill gas flare, and a Vertical Vaporator™ system coupled with an enclosed flare, to their existing source. The source also requested the addition of some fugitive dust sources which were not included in the existing Part 70 permit for the source. Two of the fugitive dust sources, paved and unpaved roads and the bulldozing operations, qualify as insignificant activities pursuant to 326 IAC 2-7-1(21)(B) and (G)(xiii). County Line Landfill was issued a Part 70 permit (T049-9734-00029) on March 10, 1999.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

| Stack ID | Operation | Height (feet) | Diameter (feet) | Flow Rate (acfm) | Temperature (°F) |
|----------|--------------------|------------------|--------------------|---------------------|---------------------|
| 3 | Utility Flare | 15 | 1.0 | 4000 | 1500 |
| 4 | Vertical Vaporator | 40 | 7.5 | 3000 | 350 |

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on May 21, 1999.

Emission Calculations

The calculations submitted by the applicant have been verified and found to be accurate and correct. These calculations are provided in Appendix A of this document (4 pages).

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|-----------------|-------------------------------|
| PM | 225.60 |
| PM-10 | 58.86 |
| SO ₂ | 8.80 |
| VOC | 1.10 |
| CO | 194.00 |
| NO _x | 39.40 |

| HAP's | Potential To Emit (tons/year) |
|-------------------|-------------------------------|
| Hydrogen Chloride | greater than 10 |
| TOTAL | greater than 25 |

Note: HCl is the only HAP that is has potential emissions of greater than 10 tons per year. Therefore, this was the only HAP specifically listed here.

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(7) for any modification with a potential to emit greater than or equal to one hundred (100) tons per year of carbon monoxide (CO). This modification will give the source approval to construct the new emission units. An Administrative Amendment (AA# 049-11212-00029) will be issued and will incorporate the source modification into the Part 70 permit and give the source approval to operate the new emission units.

County Attainment Status

The source is located in Fulton County.

| Pollutant | Status |
|-----------------|------------|
| PM-10 | attainment |
| SO ₂ | attainment |
| NO ₂ | attainment |
| Ozone | attainment |
| CO | attainment |
| Lead | attainment |

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Fulton County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Fulton County has been classified as attainment or unclassifiable for all other regulated pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

| Pollutant | Emissions (tons/year) |
|-----------------|---------------------------------|
| PM | Less than 100 |
| PM-10 | Less than 100 |
| SO ₂ | Less than 100 |
| VOC | Less than 100 |
| CO | Greater than 100, Less than 250 |
| NO _x | Less than 100 |

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon the Technical Support Document for Part 70 Operating Permit No. T049-9734-00029, issued on March 10, 1999.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

| | Potential to Emit (tons/year) | | | | | | |
|--------------------|----------------------------------|-------|-----------------|------|--------|-----------------|-------|
| Process/facility | PM | PM-10 | SO ₂ | VOC | CO | NO _x | HAPs |
| Flare/Vaporator | 6.20 | 6.20 | 8.80 | 1.10 | 194.00 | 39.40 | 39.40 |
| Fugitive Emissions | 219.40 | 52.66 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 225.60 | 58.86 | 8.80 | 1.10 | 194.00 | 39.40 | 39.40 |

Note: Emissions from Flare/Vaporator represent the worst case emissions from either the Open Flare or the Vertical Vaporator since the two cannot be operated simultaneously.

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

- (a) The existing municipal solid waste landfill is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.750, Subpart WWW) because the municipal solid waste landfill commenced construction, reconstruction or modification or began accepting waste on or after May 30, 1991. However, this proposed modification is not subject to the requirements of this NSPS until the Permittee has calculated non methane organic compound (NMOC) emissions of greater than 50 megagrams per year.

Pursuant to 40 CFR 60.752, a municipal solid waste landfill with a design capacity greater than 2.5 million megagrams (Mg) shall either comply with 40CFR 60.752 (b)(2) or calculate the non methane organic compound emission (NMOC) rate for the landfill using the procedures specified in 40 CFR 60.754. (The Permittee's initial design capacity report was submitted on December 16, 1996. The Permittee's initial NMOC report was submitted on October 6, 1997. The Permittee's design plan was submitted on June 10, 1996.)

If the Permittee has calculated non methane organic compound (NMOC) emissions less than 50 megagrams (Mg) per year, the Permittee shall:

- (1) Submit an annual NMOC report to the Office of Air Management (OAM);

and
- (2) Recalculate the non methane organic compound (NMOC) emission rate annually using the procedures specified in 40CFR 60.754(a)(1) until such time as the calculated non methane organic compound (NMOC) emission rate is equal to or greater than 50 megagrams (Mg) per year or the landfill is closed.

When NMOC emissions are calculated to be greater than 50 megagrams per year, the following requirements shall be applicable to the entire source including this proposed modification pursuant to 40 CFR 60.752:

- (1) Submit a collection and control system design plan prepared by a professional engineer that meets the requirements of 40CFR 60.752 (b)(2)(ii) to the Office of Air Management (OAM) within one year after calculated non methane organic compound (NMOC) emissions of greater than 50 megagrams (Mg) per year. The design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, record keeping or reporting provisions of 40CFR 60.753 through 40CFR 60.758 that are proposed by the Permittee. The design plan shall either conform with specifications for active collection systems in 40 CFR 60.759 or include a demonstration to the Office of Air Management's (OAM) satisfaction of the sufficiency of the alternative provisions to 40 CFR 60.759. The Office of Solid and Hazardous Waste Management (OSHW) shall review the design plan and can either approve, disapprove, or request additional information be submitted by the Permittee.
- (2) Install a collection and control system within eighteen months of the submittal of the design plan that effectively captures the gas generated within the landfill.

An active collection system shall:

- (A) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment.

- (B) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of five years or more if active or two years or more if closed or at final grade.
- (C) Collect gas at a sufficient extraction rate.
- (D) Be designed to minimize off-site migration of subsurface gas.

A passive collection system shall:

- (A) Comply with the provisions specified in paragraphs A, B, and D above.
 - (B) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under 40 CFR 258.40 of the title.
- (3) Route all collected gas to an open flare collection system that is designed and operated in accordance with 40CFR 60.18.
 - (4) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of 40CFR 60.753, 60.755, and 60.756.
 - (5) Cap or remove the collection and control system provided that the following conditions are met:
 - (A) The landfill shall be no longer accepting solid waste and be permanently closed under the requirements of §258.60 of this title. A closure report shall be submitted to the Office of Solid and Hazardous Waste Management (OSHW) as provided in 40CFR 60.757 (d);
 - (B) The collection and control system shall have been in operation a minimum of fifteen years;

and

 - (C) The calculated non methane organic compound (NMOC) gas produced by the landfill shall be less than 50 megagrams (Mg) per year on three consecutive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

Pursuant to 40CFR 60.754 the Permittee shall calculate the non methane organic compound (NMOC) rate using either of the equations listed below. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o , and 4,000 parts per million by volume as hexane for the C_{NMOC} .

- (1) The following equation when the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^n 2 k L_o M_i (e^{-kt_i}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC} = Total NMOC emission rate from the landfill, megagrams per year

k = methane generation rate constant, year⁻¹

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of solid waste in the i^{th} section, megagrams

t_i = age of the i^{th} section, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of 40CFR 60.758(d)(2) are followed.

- (2) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown:

$$M_{\text{NMOC}} = 2 L_o R (e^{-kc} - e^{-kt})(C_{\text{NMOC}})(3.6 \times 10^{-9})$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year⁻¹

t = age of landfill, years

C_{NMOC} = concentration of NMOC < parts per million by volume as hexane

c = time since closure, years. For active landfill $c = 0$ and $e^{-kc} = 1$

3.6×10^{-9} = conversion factor

The mass of the nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of 40CFR 60.758(d)(2) are followed.

If the calculated non methane organic compound (NMOC) emission rate is equal to or greater than 50 megagrams per year, then the Permittee shall either comply with the provisions of 40CFR 60.752 (b)(2) or determine a site-specific non methane organic compound (NMOC) emission rate using the procedures described in 40CFR 60.754 (a)(3).

- (1) In order to comply with 40CFR 60.752 (b)(2)(ii) the Permittee shall:
- (A) Operate the collection system such that gas is collected from each area, cell, or group of cells in the municipal solid waste landfill in which solid waste has been in place for five years if active or 2 years or more if closed or at final grade.
 - (B) Operate the collection system with negative pressure at each wellhead except under the following conditions:
 - (i) Fire or increased well temperature. The Permittee shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in 40CFR 60.757(f)(1).
 - (ii) Use of a geomembrane or synthetic cover. The Permittee shall develop acceptable pressure limits in the design plan.

- (iii) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Office of Air Management (OAM).
- (C) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55EC and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The Permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.
 - (i) The nitrogen level shall be determined using Method 3C, unless an alternative method is established as allowed by 40CFR 60.752 (b)(2)(i).
 - (ii) Unless an alternative test method is established as allowed by 40CFR 60.752 (b)(2)(i), the oxygen shall be determined by an oxygen meter using Method 3A except that; the span shall be set so that the regulatory limit is between 20 and 50 percent of the span; a data recorder is not required; only two calibration gases are required, a zero and span, and ambient air may be used as the span; a calibration error check is not required; the allowable sample bias, zero drift, and calibration drift are ± 10 percent.
- (A) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the Permittee shall conduct surface testing around the perimeter of the collection area along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The Permittee may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.
- (B) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with 40CFR 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within one hour.
- (C) Operate the control system at all times when the collected gas is routed to the system.
- (D) If monitoring demonstrates that the operational requirement in 40CFR 60.753(b), (c), or (d) are not met, corrective action shall be taken as specified in 40CFR 60.752(a)(3) through (5) or 40CFR 60.755(c). If corrective actions are taken as specified in 40CFR 60.755, the monitored exceedance is not a violation of the operational requirements in 40CFR 60.753.

- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

This proposed modification does not have potential emissions of 250 tons per year or more of any air pollutant subject to regulation under the Clean Air Act and it is not one of the twenty-eight (28) listed sources, therefore, pursuant to 326 IAC 2-2 this modification is a minor modification to an existing minor source. However, the source will be a major source after this proposed modification is completed.

326 IAC 2-6 (Emission Reporting)

With the addition of this proposed modification to the source, this source is subject to 326 IAC 2-6 (Emission Reporting), because it is located in Fulton County and has the potential to emit more than one hundred (100) tons per year of carbon monoxide (CO). Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8)(Emission Statement Operating Year).

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

326 IAC 6-4 (Fugitive Dust Emissions)

This source is subject to 326 IAC 6-4 for fugitive dust emissions. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), fugitive dust shall not be visible crossing the boundary or property line of a source. Observances of visible emissions crossing property lines may be refuted by factual data expressed in 326 IAC 6-4-2(1), (2) or (3).

State Rule Applicability - Individual Facilities

326 IAC 2-4.1-1 (New Source Toxics Control)

326 IAC 2-4.1-1 applies to the construction or reconstruction of major source for HAP, as defined in 40 CFR 63.41. Since the HAPs emitted from this modification, which is for control equipment, originate from the existing municipal solid waste landfill which was constructed prior to the applicability date of this rule, which is July 27, 1997, this rule does not apply.

326 IAC 6-3-2 (Process Operations)

The particulate matter (PM) emissions from the dirt piling and handling operation shall not exceed 12.6 pounds per hour based on the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 4.10 P^{0.67}$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

= 5.35 tons per hour

Potential PM emissions from the dirt piling and handling operation are less than 12.6 pounds per hour, therefore, this operation is in compliance with this rule (see Appendix A, page 4 of 4 for detailed calculations).

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

1. The Permittee complying with 40CFR 60.752 (b)(2)(ii)(A) has applicable compliance monitoring conditions with regard to an active collection system as specified below:
 - (a) The Permittee shall install a sampling port and a thermometer or other temperature measuring device at each wellhead;
 - (b) Measure the gauge pressure in the gas collection header on a monthly basis;
 - (c) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis; and
 - (d) Monitor temperature of the landfill gas on a monthly basis.

These monitoring conditions are necessary because the active collection system must operate properly to ensure compliance with 40 CFR 60.750, Subpart WWW and 326 IAC 2-7 (Part 70).

2. The Permittee complying with 40CFR 60.752 (b)(2)(iii) has applicable compliance monitoring conditions with regard to the blower/flare station, which is an open flare, as specified below:

- (a) The Permittee shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
 - (1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame; and
 - (2) A device that records flow to or bypass of the flare.
- (A) The Permittee shall either install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the

- (B) control device at least every fifteen minutes; or
 - (B) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

These monitoring conditions are necessary because the utility flare system for the combustion of landfill gas must operate properly to ensure compliance with 40 CFR 60.750, Subpart WWW and 326 IAC 2-7 (Part 70).

- 3. The Permittee complying with 40CFR 60.752 (b)(2)(iii) has applicable compliance monitoring conditions with regard to the Vertical Vaporator system, which includes an enclosed flare, as specified below:
 - (a) The Permittee shall calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:
 - (1) A temperature monitoring device equipped with a continuous recorder and having an accuracy of ± 1 percent of the temperature being measured expressed in degrees Celsius or ± 0.5 °C, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 megawatts.
 - (2) A gas flow rate measuring device that provides a measurement of gas flow to or bypass of the control device.
 - (A) The Permittee shall either install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or
 - (B) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

These monitoring conditions are necessary because the Vertical Vaporator system for the combustion of landfill gas and leachate disposal must operate properly to ensure compliance with 40 CFR 60.750, Subpart WWW and 326 IAC 2-7 (Part 70).

These compliance monitoring requirements are already included in section D.1 of the Part 70 permit (T049-9734-00029) which was issued to the source on March 10, 1999.

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 049-10987-00029.

Appendix A: Emission Calculations Summary

Company Name: County Line Landfill
Address City IN Zip: 7922 North Old US Highway 31, Argos, Indiana 46501
Source Modification No.: 049-10987
Pit ID: 049-00029
Reviewer: Trish Earls/EVP
Date: June 24, 1999

| Potential Emissions (tons/year) | | | | |
|---------------------------------|------------|--------------------|---------------------------|---------|
| Emissions Generating Activity | | | | |
| Pollutant | Open Flare | Vertical Vaporator | Fugitive Emission Sources | TOTAL** |
| PM* | 4.80 | 6.20 | 219.40 | 225.60 |
| PM10 | 4.80 | 6.20 | 52.66 | 58.86 |
| SO2 | 8.80 | 8.20 | 0.00 | 8.80 |
| NOx | 35.70 | 39.40 | 0.00 | 39.40 |
| VOC | 1.10 | 0.92 | 0.00 | 1.10 |
| CO | 194.00 | 158.00 | 0.00 | 194.00 |
| total HAPs*** | 27.90 | 39.40 | 0.00 | 39.40 |
| worst case single HAP**** | 12.60 | 24.70 | 0.00 | 24.70 |

Total emissions based on rated capacity at 8,760 hours/year.

* PM emissions are assumed to be equal to PM10 emissions.

** Total Emissions represent worst case emissions from the open flare or the Vertical Vaporator since the two cannot be operated simultaneously.

*** HAP emissions are based on a mass balance equation based on the default concentration of HAPs in the inlet gas and the lower end of the range of published destruction efficiencies in AP-42, Section 2.4, Table 2.4-1.

**** Worst case single HAP emissions represent HCl emissions. Emissions were based on an analysis of the total contribution of each of the other landfill gas compounds (HAPs) to HCl emissions. The calculation was based on a mass balance equation using the number of chlorine atoms in each compound, the control efficiency for the compound, and the concentration of each constituent and its mass contribution to the outlet gas.

Summary of Emissions Calculations

Open Flare

LFG flow = 4,000 scfm
 LFG moisture content⁽¹⁾ = 8%
 Heat Input to Flare = 120 MMBtu/hr

PM10 Emission Rate

PM10 emission factor⁽²⁾ = 80 ug/dsl
 PM10 emission rate⁽³⁾ = 1.10 lb/hr = **4.8 tons/yr**

VOC Emission Rate

NMOC concn. in inlet gas⁽⁴⁾ = 595 ppmv
 VOC fraction of NMOC⁽⁴⁾ = 39%
 VOC concn. in inlet gas = 232 ppmv
 MW hexane = 86 lb/lb-mol
 mass VOC in inlet gas⁽⁵⁾ = 12.61 lb/hr
 flare destruction efficiency = 98%
 VOC emission rate⁽⁵⁾ = 0.25 lb/hr = **1.1 tons/yr**

SO₂ Emission Rate

Total sulfur in inlet gas⁽⁶⁾ = 49.60 ppmv
 SO₂ emission rate⁽⁷⁾ = 2.01 lb/hr = **8.8 tons/yr**

NOx Emission Rate

NOx emission factor⁽⁸⁾ = 0.068 lb/MMBtu
 NOx emission rate⁽⁹⁾ = 8.16 lb/hr = **35.7 tons/yr**

CO Emission Rate

CO emission factor⁽⁸⁾ = 0.37 lb/MMBtu
 CO emission rate⁽⁹⁾ = 44.4 lb/hr = **194 tons/yr**

- (1) Source: "Landfill Gas Emissions," Louis Kalani and Ray Nardelli, LFG Specialties, presented at 20th Annual Landfill Gas Symposium (SWANA), 3/25/96.
- (2) Source: draft AP-42 (9/95), table 13.5-1, PM emission factor for lightly-smoking flares (x 2 for safety factor). Assume PM=PM10.
- (3) $PM_{10} \text{ emissions (lb/hr)} = (scfm * (1 - \% \text{ moisture}) * 28.317 \text{ l/scf}) * (ug/dsl) * (1g/1,000,000 \text{ ug}) * (60 \text{ min/hr}) * (1lb/454g)$
- (4) Source: AP-42 (11/98), table 2.4-2. NMOC concentration is as hexane.
- (5) $\text{Mass VOC in inlet gas (lb/hr)} = [(MW \text{ hexane} * VOC \text{ concn. (ppmv)} * scfm)] / [(R) * (T) * (60 \text{ min/hr})]$
 $VOC \text{ emissions (lb/hr)} = \text{Mass VOC in inlet gas (lb/hr)} * (1 - 0.98)$
- (6) Inlet H₂S, carbon disulfide, carbonyl sulfide, dimethyl sulfide, and methyl mercaptan concentrations from AP-42 (9/97), table 2.4-1.
- (7) 98% to 99.7% of sulfur-containing compounds converts to SO₂ during combustion. Therefore,
 $SO_2 \text{ emissions (lb/hr)} = [(scfm) * (60 \text{ min/hr}) * (\text{total sulfur concn. (ppmv)}) * (0.997) * (MW \text{ SO}_2)] / [(R) * (T)]$
- (8) Source: draft AP-42 (9/95), table 13.5-1.
- (9) NOx and CO emission rates (lb/hr) = Emission factor (lb/MMBtu) * Heat Input (MMBtu/hr)

Open Flare - Limited Operation

LFG flow = 1,850 scfm
 LFG moisture content⁽¹⁾ = 8%
 Heat Input to Flare = 56 MMBtu/hr

PM10 Emission Rate

PM10 emission factor⁽²⁾ = 80 ug/dsl
 PM10 emission rate⁽³⁾ = 0.51 lb/hr = **2.2 tons/yr**

VOC Emission Rate

NMOC concn. in inlet gas⁽⁴⁾ = 595 ppmv
 VOC fraction of NMOC⁽⁴⁾ = 39%
 VOC concn. in inlet gas = 232 ppmv
 MW hexane = 86 lb/lb-mol
 mass VOC in inlet gas⁽⁵⁾ = 5.83 lb/hr
 flare destruction efficiency = 98%
 VOC emission rate⁽⁵⁾ = 0.12 lb/hr = **0.53 tons/yr**

SO₂ Emission Rate

Total sulfur in inlet gas⁽⁶⁾ = 49.60 ppmv
 SO₂ emission rate⁽⁷⁾ = 0.93 lb/hr = **4.1 tons/yr**

NOx Emission Rate

NOx emission factor⁽⁸⁾ = 0.068 lb/MMBtu
 NOx emission rate⁽⁹⁾ = 3.77 lb/hr = **16.5 tons/yr**

CO Emission Rate

CO emission factor⁽⁸⁾ = 0.37 lb/MMBtu
 CO emission rate⁽⁹⁾ = 20.535 lb/hr = **89.9 tons/yr**

- (1) Source: "Landfill Gas Emissions," Louis Kalani and Ray Nardelli, LFG Specialties, presented at 20th Annual Landfill Gas Symposium (SWANA), 3/25/96.
- (2) Source: draft AP-42 (9/95), table 13.5-1, PM emission factor for lightly-smoking flares (x 2 for safety factor). Assume PM=PM10.
- (3) $PM10 \text{ emissions (lb/hr)} = (scfm * (1 - \% \text{ moisture}) * 28.317 \text{ l/scf}) * (ug/dsl) * (1g/1,000,000 \text{ ug}) * (60 \text{ min/hr}) * (1lb/454g)$
- (4) Source: AP-42 (11/98), table 2.4-2. NMOC concentration is as hexane.
- (5) $Mass \text{ VOC in inlet gas (lb/hr)} = [(MW \text{ hexane} * VOC \text{ concn. (ppmv)} * scfm)] / [(R) * (T) * (60 \text{ min/hr})]$
 $VOC \text{ emissions (lb/hr)} = Mass \text{ VOC in inlet gas (lb/hr)} * (1 - 0.98)$
- (6) Inlet H₂S, carbon disulfide, carbonyl sulfide, dimethyl sulfide, and methyl mercaptan concentrations from AP-42 (9/97), table 2.4-1.
- (7) 98% to 99.7% of sulfur-containing compounds converts to SO₂ during combustion. Therefore,
 $SO_2 \text{ emissions (lb/hr)} = [(scfm) * (60 \text{ min/hr}) * (total \text{ sulfur concn. (ppmv)}) * (0.997) * (MW \text{ SO}_2)] / [(R) * (T)]$
- (8) Source: draft AP-42 (9/95), table 13.5-1.
- (9) NOx and CO emission rates (lb/hr) = Emission factor (lb/MMBtu) * Heat Input (MMBtu/hr)

Summary of Emissions Calculations

Vertical Vaporator

LFG flow = 3,000 scfm
 LFG moisture content⁽¹⁾ = 8%
 Heat Input to Flare = 90 MMBtu/hr

PM10 Emission Rate

PM10 emission factor⁽²⁾ = 17.0 lb/MMdscf methane
 0.00102 lb/hr/dscfm methane
 PM10 emission rate⁽³⁾ = 1.40 lb/hr = **6.2 tons/yr**

VOC Emission Rate

NMOC concn. in inlet gas⁽⁴⁾ = 595 ppmv
 VOC fraction of NMOC⁽⁴⁾ = 39%
 VOC concn. in inlet gas = 232 ppmv
 MW hexane = 86 lb/lb-mol
 mass VOC in inlet gas⁽⁵⁾ = 9.46 lb/hr
 mass VOC in leachate⁽⁶⁾ = 1.05 lb/hr
 flare destruction efficiency = 98%
 VOC emission rate⁽⁵⁾ = 0.210 lb/hr = **0.92 tons/yr**

SO₂ Emission Rate

SO₂ emission rate⁽⁷⁾ = 1.87 lb/hr = **8.2 tons/yr**

NOx Emission Rate

NOx emission factor⁽⁸⁾ = 0.10 lb/MMBtu
 NOx emission rate⁽⁹⁾ = 9.0 lb/hr = **39.4 tons/yr**

CO Emission Rate

CO emission factor⁽⁸⁾ = 0.40 lb/MMBtu
 CO emission rate⁽⁹⁾ = 36.0 lb/hr = **158 tons/yr**

- (1) Source: "Landfill Gas Emissions," Louis Kalani and Ray Nardelli, LFG Specialties, presented at 20th Annual Landfill Gas Symposium (SWANA), 3/25/96.
- (2) Source: AP-42 (11/98), table 2.4-5, Particulate emission factor for a flare. Assume PM=PM10.
- (3) $PM_{10} \text{ emissions (lb/hr)} = (\text{scfm} * (1 - \% \text{ moisture}) * 28.317 \text{ l/scf}) * (\text{ug/dsl}) * (1\text{g}/1,000,000 \text{ ug}) * (60 \text{ min/hr}) * (1\text{lb}/454\text{g})$
- (4) Source: AP-42 (11/98), table 2.4-2. NMOC concentration is as hexane.
- (5) $\text{Mass VOC in inlet gas (lb/hr)} = [(\text{MW hexane} * \text{VOC concn. (ppmv)} * \text{scfm})] / [(R) * (T) * (60 \text{ min/hr})]$
 $\text{VOC emissions (lb/hr)} = \text{Mass VOC in inlet gas (lb/hr)} * (1 - 0.98)$
- (6) Mass VOC in leachate was obtained by summing the various organic compounds expected to be present in the leachate using EPA "typical" leachate data, Summary of Data on Municipal Solid Waste Landfill Leachate Characteristics "Criteria For Municipal Solid Waste Landfills", EPA, July 1998 (NTIS PB88-242441).
- (7) Inlet H₂S, carbon disulfide, carbonyl sulfide, dimethyl sulfide, and methyl mercaptan concentrations from AP-42 (9/97), table 2.4-1. 99.7% of sulfur-containing compounds converts to SO₂ during combustion. Therefore, $SO_2 \text{ emissions (lb/hr)} = [(\text{scfm}) * (60 \text{ min/hr}) * (\text{total sulfur concn. (ppmv)}) * (0.997) * (\text{MW } SO_2)] / [(R) * (T)]$
- (8) Source: NOx and CO emission factors are from manufacturer's guarantee of heat input to flare.
- (9) $NO_x \text{ and CO emission rates (lb/hr)} = \text{Emission factor (lb/MMBtu)} * \text{Heat Input (MMBtu/hr)}$

Appendix A: Emission Calculations Summary

Fugitive Emissions

Company Name: County Line Landfill
Address City IN Zip: 7922 North Old US Highway 31, Argos, Indiana 46501
Source Modification No.: 049-10987
Plt ID: 049-00029
Reviewer: Trish Earls/EVP
Date: June 24, 1999

** unpaved roads **

The following calculations determine the amount of emissions created by unpaved roads, based on 8,760 hours of use and AP-42, Ch. 13.2.2, Equation 2 (9/98).

| | | | |
|--|-----------------|--|---------------------|
| 3.26 | trip/hr x | | |
| 0.52 | mile/trip x | | |
| 2 | (round trip) x | | |
| 8760 | hr/yr = | 29791.67 | miles per year |
| E _f = {k*[(s/12) ^{0.8}]*[(W/3) ^b]/[(Mdry/0.2) ^c]*[(365-p)/365]} | | | |
| = | 2.73 | lb PM-10/mile | |
| = | 13.39 | lb TSP/mile | |
| where k = | 2.6 | (particle size multiplier for PM-10) (k=10 for PM-30 or TSP) | |
| s = | 6.4 | mean % silt content of unpaved roads | |
| b = | 0.4 | Constant for PM-10 (b = 0.5 for PM-30 or TSP) | |
| c = | 0.3 | Constant for PM-10 (c = 0.4 for PM-30 or TSP) | |
| W = | 34 | tons average vehicle weight | |
| Mdry = | 0.2 | surface material moisture content, % (default is 0.2 for dry conditions) | |
| p = | 125 | no. of days with at least 0.254mm of precipitation (See Fig. 13.2.2-1) | |
| 2.73 | lb/mi x | 29791.67 | mi/yr = |
| | 2000 | lb/ton | 40.67 tons/yr PM-10 |
| 13.39 | lb/mi x | 29791.67 | mi/yr = |
| | 2000 | lb/ton | 199.42 tons/yr PM |

** paved roads **

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch. 13.2.1, Equation 1 (10/97).

| | | | |
|---|-----------------|---|--------------------|
| 3.26 | trip/hr x | | |
| 0.05 | mile/trip x | | |
| 2 | (round trip) x | | |
| 8760 | hr/yr = | 2708.33 | miles per year |
| E _f = k*(sL/2) ^{0.65} *(W/3) ^{1.5} | | | |
| = | 1.43 | lb PM-10/mile | |
| = | 7.32 | lb TSP/mile | |
| where k = | 0.016 | (particle size multiplier for PM-10) (k=0.082 for PM-30 or TSP) | |
| sL = | 7.4 | road surface silt loading (g/m ²) | |
| W = | 34 | tons average vehicle weight | |
| 1.43 | lb/mi x | 2708.33 | mi/yr = |
| | 2000 | lb/ton | 1.93 tons/yr PM-10 |
| 7.32 | lb/mi x | 2708.33 | mi/yr = |
| | 2000 | lb/ton | 9.92 tons/yr PM |

** bulldozing operations **

The following calculations determine the amount of emissions created by bulldozing operations, based on 8,760 hours of use and the "CEQA Air Quality Handbook," Table A9-9-F, South Coast Air Quality Management District, (4/93).

| | |
|------------------|--|
| E _f = | (0.45*((G ^{1.5})/(H ^{1.4}))) * I * J * (365 days/yr) * (1 ton/2000 lbs) |
| = | 2.13 tons PM-10/yr |
| where G = | 6.4 silt content (%) |
| H = | 12.14 moisture content (%) (from AP-42, Section 13.2.4, Table 13.2.4-1, 1/96, avg. of given mean values) |
| I = | 2.2046 conversion from kilograms to pounds |
| J = | 8760 Pushing Operation hours |

** Dirt Piling and Handling **

The following calculations determine the amount of emissions created by dirt piling and handling, based on 8,760 hours of use and the "CEQA Air Quality Handbook," Table A9-9-G, South Coast Air Quality Management District, (4/93).

| | |
|------------------|--|
| E _f = | (0.00112*((G/5) ^{1.3})/((H/2) ^{1.4}))* (I/J) |
| = | 7.93 tons PM-10/yr |
| where G = | 8.15 mean wind speed (mph) |
| H = | 12.14 moisture content (%) (from AP-42, Section 13.2.4, Table 13.2.4-1, 1/96, avg. of given mean values) |
| I = | 93750000 pounds of dirt handled per year |
| J = | 2000 conversion factor from pounds to tons |

326 IAC 6-3-2 Compliance Calculation for Dirt Piling and Handling

The following calculations determine compliance with 326 IAC 6-3-2 for process weight rates up to 30 tons per hour:

$$\text{limit} = 4.1 * (5.35^{0.67}) = 12.61 \text{ lb/hr or } 55.25 \text{ ton/yr}$$

Since potential particulate matter emissions from dirt piling and handling are less than the 326 IAC 6-3-2 allowable emission rate, this operation is in compliance with the rule.